

REMARKS

Reconsideration and allowance of the present application based on the following remarks are respectfully requested. Claims 6, 8, and 12 have been amended, and Claims 26 and 27 are newly presented. Claims 1-27 remain pending in the present application. Claims 1, 4-7, 10-14, 16, 19-21 and 25 are independent claims. Claims 13-25 have been withdrawn from consideration.

Applicant respectfully submits that the amendments to the claims are fully supported by the original disclosure, and that no new matter has been introduced therewith.

In the Office Action dated November 30, 2001, the Examiner objected to the specification because reference to specific claims is improper. Applicant requests that this objection be held in abeyance until an amendment can be filed in order to correct the noted informalities.

The Examiner rejected Claims 5 and 11 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Muncheryan (U.S. Patent No. 4,979,180) in view of DeRossett, Jr. (U.S. Patent No. 5,298,717), Lizotte et al. (U.S. Patent No. 6,256,121) and Okada et al. (U.S. Patent No. 5,690,846). Claims 8/5, and 9/5 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Muncheryan in view of DeRossett, Jr., Lizotte et al. and Okada et al., and further in view of Roland et al. (U.S. Patent No. 3,792,287). Applicant respectfully traverses these rejections.

Claims 5 and 11, as amended in the previous response, each sets forth that the diffraction of the laser beam is controlled and forms a via hole.

As discussed in the response filed September 14, 2001, Muncheryan discloses a modular interchangeable laser system. Muncheryan fails to teach or reasonably suggest controlling the diffraction of the processing laser source disclosed therein to form a via hole, as required by Claims 5, 8/5, 9/8/5, and 11. DeRossett, Jr. discloses a method and apparatus for laser inscription of an image on a surface, wherein laser power is controlled to avoid damaging the structural integrity of the

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glass (abstract). DeRossett, Jr. fails to supplement the deficiencies of Muncheryan because DeRossett, Jr. fails to teach or reasonably suggest teach or reasonably suggest controlling the diffraction of the processing laser source disclosed therein to form a via hole, as required by Claims 5, 8/5, 9/8/5, and 11. Okada et al. fails to supplement the deficiencies of Muncheryan because Okada et al. fails to teach or reasonably suggest teach or reasonably suggest controlling the diffraction of the processing laser source disclosed therein to form a via hole, as required by Claims 5, 8/5, 9/8/5, and 11. Roland et al. fails to supplement the deficiencies of Muncheryan because Roland et al. fails to teach or reasonably suggest teach or reasonably suggest controlling the diffraction of the processing laser source disclosed therein to form a via hole, as required by Claims 5, 8/5, 9/8/5, and 11.

In the recent Office Action, the Examiner applies the reference to Lizotte et al. as teaching the use of a flat field collimating lens system to correct the angular beam output. However, it is noted that the Lizotte et al. references has a patent date of July 3, 2001, and a filing date of March 31, 2000. Since Applicant's filing date is January 29, 1999, and Applicant's application is the U.S. national phase of PCT/JP97/04168, filed July 17, 1998, it stands to reason that the Lizotte et al. patent does not qualify as prior art under the cited statute. Applicant respectfully submits, that this ground of rejection is improper and should be withdrawn, and that these claims are allowable over the cited prior art references.

Claims 6 and 12 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Muncheryan (U.S. Patent No. 4,979,180) in view of DeRossett, Jr. (U.S. Patent No. 5,298,717) and Kumar (U.S. Patent No. 5,227,013). Claims 8/6, and 9/6 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Muncheryan in view of DeRossett, Jr. and Kumar, and further in view of Roland et al. (U.S. Patent No. 3,792,287). Applicant respectfully traverses these rejections.

Claims 6 and 12, as amended, each set forth that the laser source forms a via hole that exposes a conductive in an interlayer resin, and that the harmonic wave generating means is a non-linear optical crystal which reflects the processing laser to the harmonic wave emitting side and gives thereto the function to transmitting harmonic wave.

As discussed in the response filed September 14, 2001, Muncheryan also fails to teach or reasonably suggest using the laser source disclosed therein to form a via hole that exposes a conductive in an interlayer resin and that the harmonic wave generating means is a non-linear optical crystal which reflects the processing laser to the harmonic wave emitting side and gives thereto the function to transmitting harmonic wave, as required by Claims 6, 8/6, 9/8/6, and 12. DeRossett, Jr. discloses a method and apparatus for laser inscription of an image on a surface, wherein the laser power is controlled to avoid damaging the structural integrity of the glass (abstract). DeRossett, Jr. also fails to teach or reasonably suggest using the laser source disclosed therein to form a via hole that exposes a conductive in an interlayer resin, as required by Claims 6, 8/6, 9/8/6, and 12. Kumar fails to teach or reasonably suggest using the laser source disclosed therein to form a via hole that exposes a conductive in an interlayer resin, as required by Claims 6, 8/6, 9/8/6, and 12. Roland et al. also fails to teach or reasonably suggest using the laser source disclosed therein to form a via hole that exposes a conductive in an interlayer resin, as required by Claims 6, 8/6, 9/8/6, and 12. Applicant submit that without any other explicit teaching, aside from Applicant's own disclosure, the presently claimed invention is patentable. "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See M.P.E.P. 2142.

Applicant respectfully requests reconsideration and withdrawal of the rejection of Claims 6, and 12 under 35 U.S.C. § 103(a) as being unpatentable over Muncheryan in view of DeRossett, Jr. and Kumar, and the rejection of Claims 8/6, and 9/8/6 under 35 U.S.C. § 103(a) as being unpatentable over Muncheryan in view of DeRossett, Jr., Kumar, and Roland et al. Applicant submits that for the above reasons, these claims are allowable over the applied prior art references.

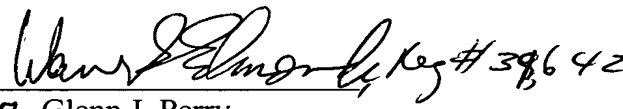
The indication by the Examiner that Claims 1-4, 7, 8/7, 9/8/7 and 10 are allowable is noted with appreciation.

In sum, Applicant respectfully submits that none of Muncheryan, DeRossett, Jr., Kumar, and Roland et al., or any combination thereof disclose or suggest the claimed invention and that all of the pending claims are in condition for allowance, which action is respectfully requested.

Attached hereto is a marked-up version of the changes made to the specification and the claims by the current amendment. The attached Appendix is captioned "Version with markings to show changes made."

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Claims 6, 8, and 12 have been amended as follows:

6. (*Thrice Amended*) A multilayer printed wiring board manufacturing apparatus comprising a processing laser source, harmonic wave generating means for converting a laser beam oscillated from said processing laser source to a shortened wavelength beam of a second harmonic wave, wherein said harmonic wave generating means is a non-linear optical crystal which reflects the processing laser to the harmonic wave emitting side and gives thereto the function to transmitting harmonic wave, and a scanning head for deflecting a direction of the laser beam in X-Y directions or an X-Y table for displacing a position of a multilayer printed wiring board, wherein a wavelength of said processing laser source is between 720nm and a minimum wavelength of the laser source, or between 6000nm and a maximum wavelength of the laser source, and said processing laser source forms a via hole exposing a conductive in an interlayer resin.

8. (*Amended*) The multilayer printed wiring board manufacturing apparatus according to [any claim of 5 to] Claim 5 or 7, wherein said harmonic wave generating means is a non-linear optical crystal which reflects the processing laser to the harmonic wave emitting side and gives thereto the function to transmitting harmonic wave.

12. (*Thrice Amended*) A laser processing apparatus comprising a processing laser source, harmonic wave generating means for converting a laser beam oscillated from said processing laser source to a shortened wavelength beam of a second harmonic wave, wherein said harmonic wave

generating means is a non-linear optical crystal which reflects the processing laser to the harmonic wave emitting side and gives thereto the function to transmitting harmonic wave, and a scanning head for deflecting a direction of the laser beam to X-Y directions or an X-Y table for displacing a position of a work piece to be processed, wherein a wavelength of said processing laser source is between 720nm and a minimum wavelength of the laser source, or between 6000nm and a maximum wavelength of the laser source, and said processing laser source forms a via hole exposing a conductive in an interlayer resin layer.

New Claims 26 and 27 have been added.

END OF APPENDIX